Topic 7: *Pressure Ulcers in Older Adults*

Competencies

1. Identify how to calculate the incidence and prevalence of pressure ulcers.
2. Perform a risk assessment for pressure ulcers, using a validated risk assessment scale.
3. Define *pressure ulcer*, including staging.
4. Plan care for prevention of pressure ulcers.
5. Plan care to include debridement, cleansing, dressing, and pressure relief.

Topic 7: *Pressure Ulcers in Older Adults*

Content Outline

1. Identify how to calculate the incidence and prevalence of pressure ulcers.

Prevalence

Prevalence (frequency of cases at any point in time) is best calculated by using the following formula:

$$\text{Pressure Ulcer } \textit{Point} \text{ Prevalence} = \frac{\text{Number of persons with a pressure ulcer}}{\text{Number of persons in a population at a particular point in time}} \times 100$$

$$\text{Pressure Ulcer } \textit{Period} \text{ Prevalence} = \frac{\text{Number of persons with a pressure ulcer}}{\text{Number of persons in a population at a particular period in time}} \times 100$$

Incidence

Incidence (new cases appearing in a population that previously was without the condition) is best calculated by using the following formula:

$$\text{Pressure Ulcer } \textit{Incidence Density} = \frac{\text{Number of persons developing a pressure ulcer} \times 1000}{\text{Total patient days} \times 1000} = \frac{\text{\# of pesons developing a pressure ulcer}}{\text{1000 patient-days}}$$

$$\text{Pressure Ulcer } \textit{Cumulative Incidence} = \frac{\text{Number of persons with pressure ulcers}}{\text{Total number of persons in population at beginning of time period}} \times 100$$

Data by Care Setting 1990–2000

	Prevalence (%)	*Incidence (%)*
Acute care	10.1–18	0.4–38
Long-term care	2.3–28	2.2–73.5
Home care	0–29	0–17

Source: Pressure Ulcers in America: Prevalence Incidence and Implications for the Future, Cuddigan, J., Ayello, E. A., Sussman, C., and Baranoski, S. (Eds.), Reston, VA: NPUAP, Feb. 23, 2001. Used by permission.

Content Outline

Healthy People 2010 (www.health.gov/healthypeople)

The Healthy People 2010 target, objective 16, is to "reduce the proportion of nursing home residents with a diagnosis of pressure ulcers to 8 diagnoses per 1,000 residents."

2. Perform a risk assessment for pressure ulcers, using a validated risk assessment scale.

Use the Braden Scale in the Instruments/Scales section of this chapter. Remember that the risk cut score for the Braden Scale varies with specific populations:

General population	≤ 16
Elderly persons	≤ 18
Black and Hispanic persons	≤ 18

3. Define pressure ulcer, including staging.

A. *Definition:* Any lesion caused by unrelieved pressure and resulting in damage of underlying tissue.

B. Review the physiology of pressure ulcer formation.

C. *Staging Definitions:**

Stage I. A stage I pressure ulcer is an observable pressure-related alteration of intact skin. Indicators, as compared to an adjacent or opposite area on the body, may include changes in one or more of the following:

a. Skin temperature (warmth or coolness).

b. Tissue consistency (firm or boggy feel).

c. Sensation (pain, itching).

*National Pressure Ulcer Advisory Panel (NPUAP) www.npuap.org.

Content Outline

The ulcer appears as a defined area of persistent redness in lightly pigmented skin. In darker skin tones, the ulcer may appear with persistent red, blue, or purple hues.

Stage II. Partial thickness skin loss involving epidermis and/or dermis. The ulcer is superficial and presents clinically as an abrasion, blister, or shallow crater.

Stage III. Full-thickness skin loss involving damage or necrosis of subcutaneous tissue that may extend down to, but not through, underlying fascia. The ulcer presents clinically as a deep crater with or without undermining of adjacent tissue.

Stage IV. Full-thickness skin loss with extensive destruction, tissue necrosis, or damage to muscle, bone, or supporting structures (e.g., tendon, joint capsules).

C. *Key Staging Points:*

1. Only stage once.
2. Stage to maximum anatomic depth of tissue involved after necrotic tissue is removed.
3. Pressure ulcers *DO NOT* heal from a Stage IV to a Stage I. Don't reverse or backstage. Key concepts from the NPUAP 2000 position paper on reverse staging:

- Structural layers of body tissue are lost.
- Defect is filled with granulation tissue.
- Do *not* use reverse staging to describe the healing pressure ulcer. Instead, use a tool to measure healing such as the PUSH or PSST tool.

4. Staging system limitations:
   - Clients with darkly pigmented skin may be more difficult to evaluate unless a melanocentric skin assessment is performed.
   - Gray or purplish skin color of clients with darkly pigmented skin, temperature, and presence of edema and fluid should be assessed.
   - Lighting source is important. Attempt to use natural or halogen light, not fluorescent.
5. If eschar is present, the ulcer cannot be staged.
6. Orthopedic appliances make assessment very difficult.

4. Plan care for prevention of pressure ulcers.

Pressure Ulcer Prevention Points

A. *Risk Assessment:*

1. Consider all bed- or chair-bound persons, or those whose ability to reposition is impaired, to be at risk for pressure ulcers.
2. Select and use a method of risk assessment, such as the Norton or the Braden Scale, to ensure systematic evaluation of individual risk factors.

3. Identify all individual risk factors (decreased mental status, moisture, incontinence, nutritional deficit such as low albumen) to direct specific preventive treatments. Modify care according to the individual factors.

4. Assess all at-risk patients at the time of admission to health-care facilities, and at regular intervals thereafter, depending on the care setting.

   Acute care: Every 48 hours or whenever condition changes.

   Long-Term Care (LTC): Weekly for first four weeks; then quarterly, at a minimum.

   Home care: Every RN visit.

B. *Skin Care and Early Treatment:*

1. Inspect the skin at least daily, and document assessment results.

2. Individualize bathing frequency. Use a mild cleansing agent; avoid hot water and excessive friction.

3. Assess and treat incontinence. When incontinence cannot be controlled, cleanse skin at the time of soiling, use a topical moisture barrier, and select underpads or briefs that are absorbent and provide a quick-drying surface to the skin.

4. Use moisturizers for dry skin; minimize environmental factors leading to dry skin, such as low humidity and cold air.

5. Avoid massage over bony prominences.
6. Use proper positioning, transferring, and turning techniques to minimize skin injury due to friction and shear forces.
7. Use dry lubricants (cornstarch) or protective coverings to reduce friction injury.
8. Identify and correct factors compromising protein/calorie intake, and consider nutritional supplement/support for nutritionally compromised persons.
9. Institute a rehabilitation program to maintain or improve mobility/activity status.
10. Monitor and document interventions and outcomes.
11. Monitor and modify night regimen.

C. *Mechanical Loading and Support Surfaces:*

1. Reposition bed-bound persons at least every two hours, and chair-bound persons every hour.
2. Use a written repositioning schedule.
3. Place at-risk persons on a pressure-reducing mattress/chair cushion. Do not use donut-type devices.
4. Consider postural alignment, 30-degree lateral position, distribution of weight, balance and stability, and pressure relief when positioning persons in chairs or wheelchairs.

5. Teach chair-bound persons, (if they are able) to shift their weight every 15 minutes.
6. Use lifting devices (i.e., trapeze or bed linen) to *move* rather than *drag* persons during transfers and position changes.
7. Use pillows or foam wedges to keep bony prominences such as knees and ankles from direct contact with each other.
8. Use devices that totally relieve pressure on the heels (i.e., place pillows under the calf to raise the heels off the bed).
9. Avoid positioning directly on the trochanter when using the side-lying position (use 30-degree lateral inclined position).
10. Elevate the head of the bed as little as possible (maximum 30-degree angle) and only for a short time.

D. *Education:*

1. For the prevention of pressure ulcers, implement educational programs that are structured, organized, comprehensive and directed at all levels of healthcare providers, patients, family, and caregivers.
2. Include information on
   a. Etiology and risk factors for pressure ulcers.
   b. Risk assessment tools and their application.
   c. Skin assessment.

d. Selection/Use of support surfaces.
e. Development/Implementation of individualized programs of skin care.
f. Demonstration of positioning to decrease risk of tissue breakdown.
g. Accurate documentation of pertinent data.

3. Include built-in mechanisms to evaluate program effectiveness in preventing pressure ulcers.

5. Plan care to include debridement, cleansing, dressing, and pressure relief for an older person.

The plan should include strategies for nutrition, pain management, and psychosocial issues.

*Use AHRQ Guideline Algorithm:** www.ahrq.gov/qual

(See Figures 7.1–7.4 on pages 7-10 through 7-13.)

*National Pressure Ulcer Advisory Panel (NPUAP) www.npuap.org.

Topic 7: *Pressure Ulcers in Older Adults*

Content Outline

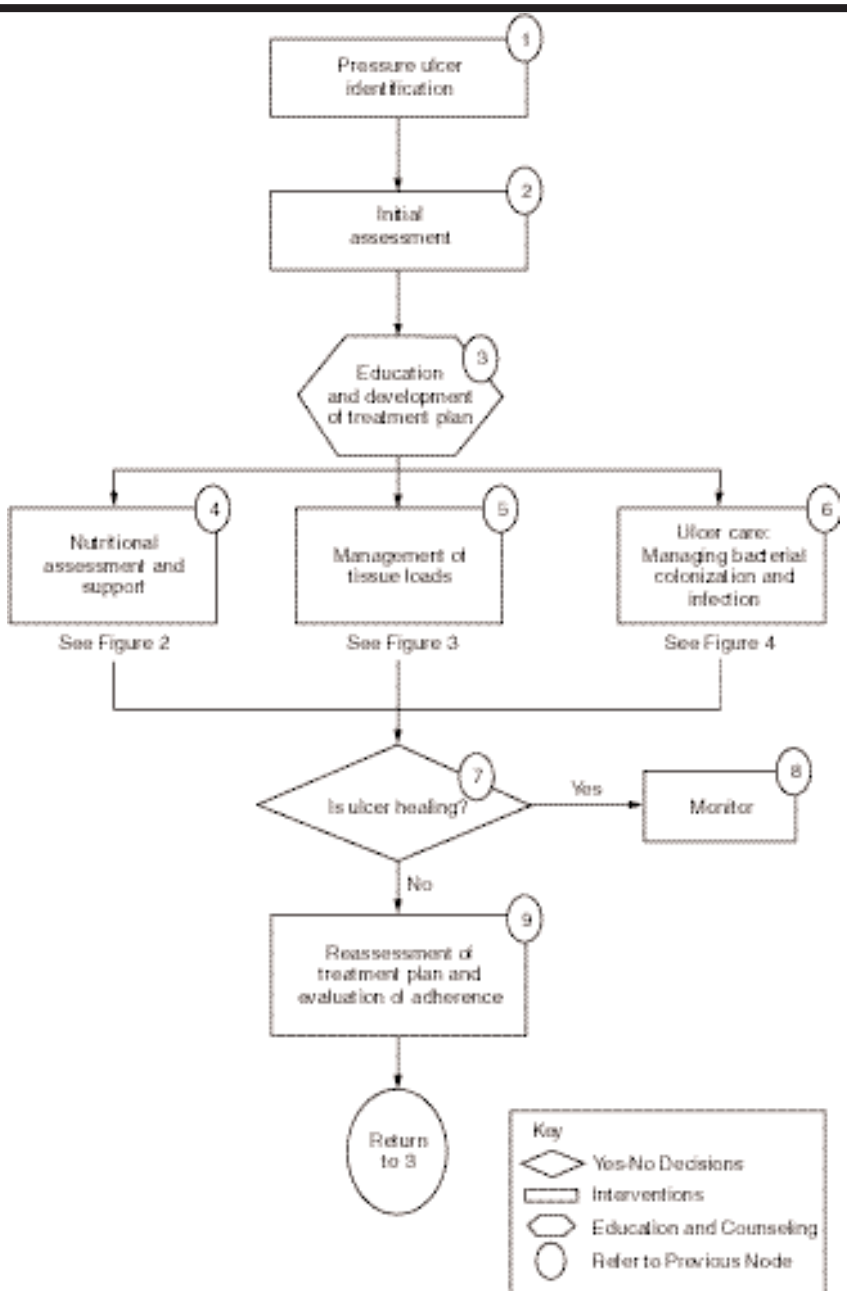

Figure 7.1 Management of pressure ulcers: Overview. (*Source:* National Pressure Ulcer Advisory Panel: www.npuap.org.)

Topic 7: *Pressure Ulcers in Older Adults*

Content Outline

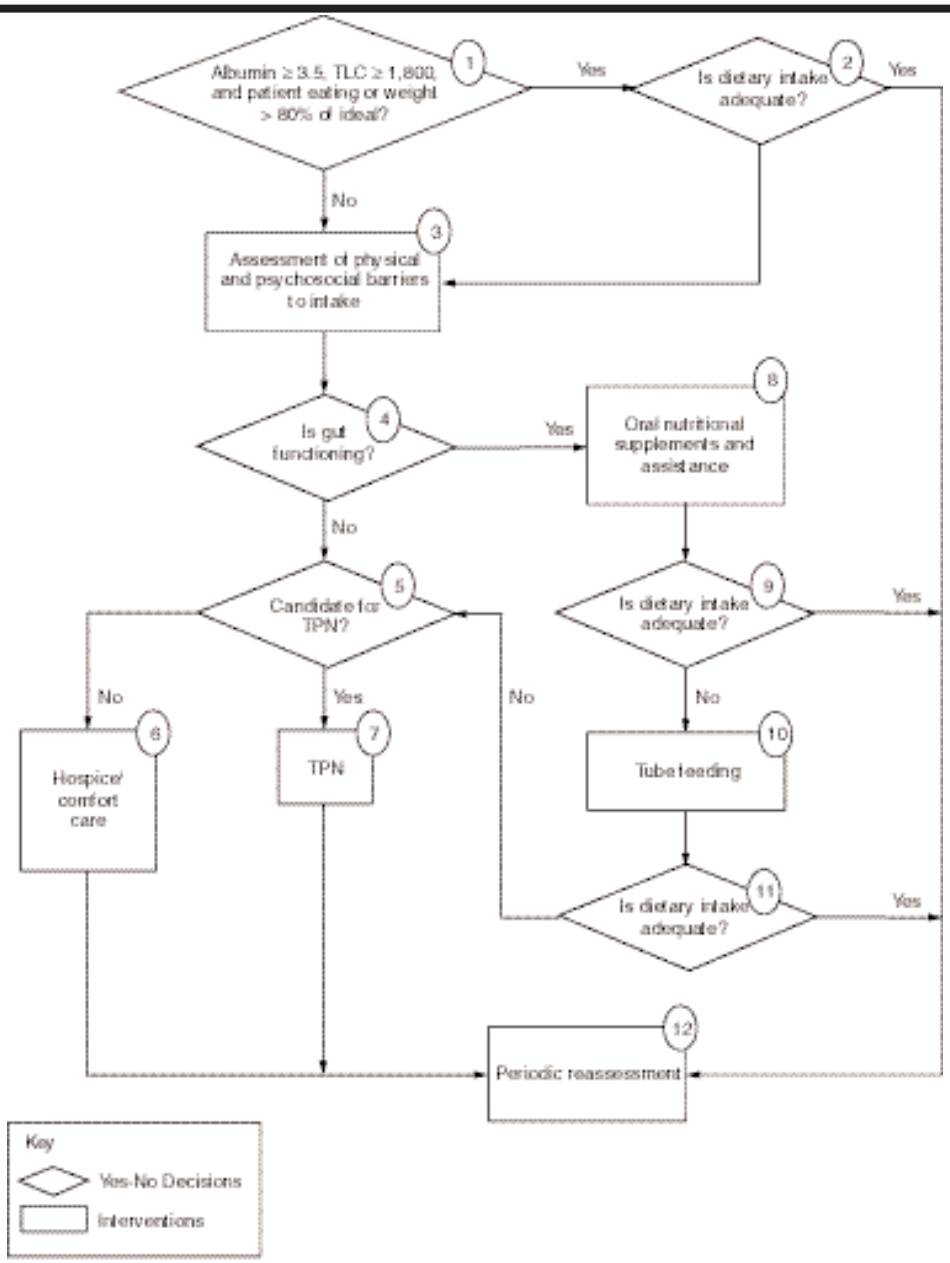

Figure 7.2 Nutritional assessment and support. (*Source:* National Pressure Ulcer Advisory Panel: www.npuap.org.)

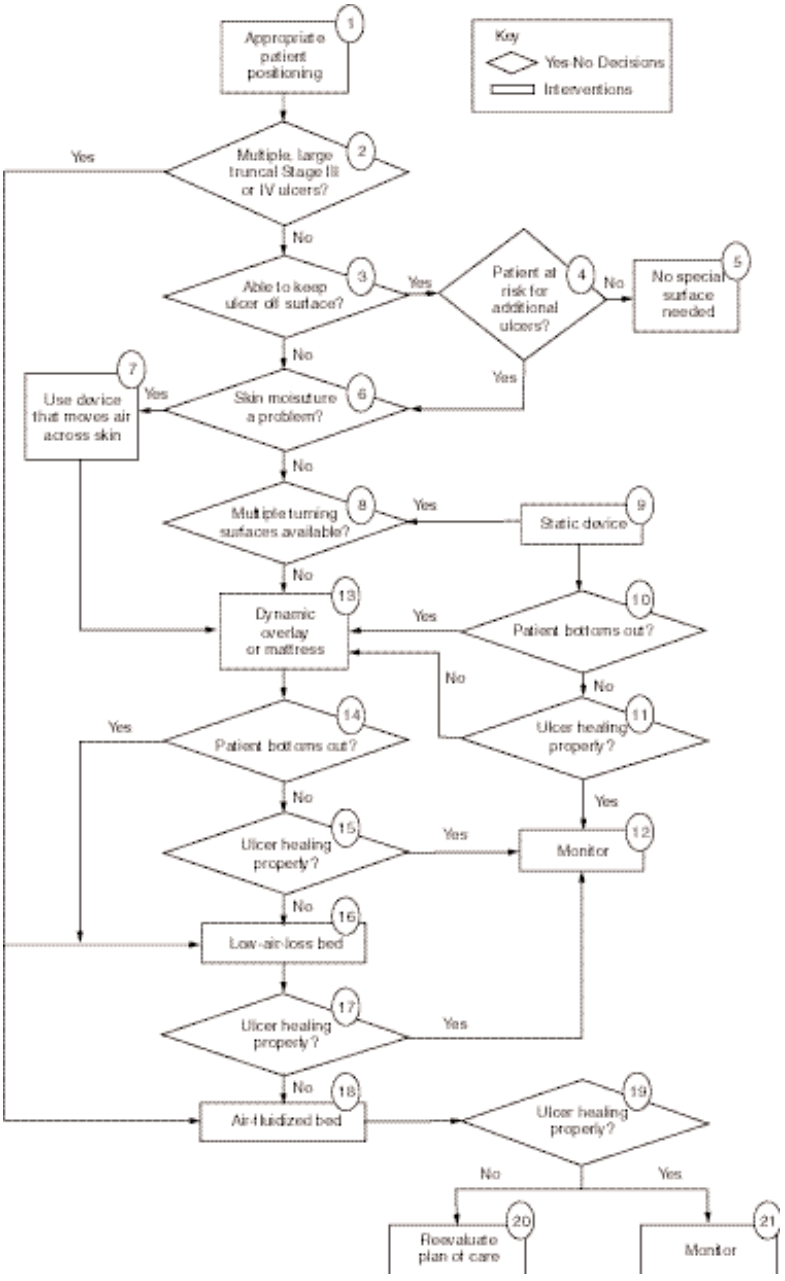

Figure 7.3 Management of tissue loads. (*Source:* National Pressure Ulcer Advisory Panel: www.npuap.org.)

Topic 7: *Pressure Ulcers in Older Adults*

Content Outline

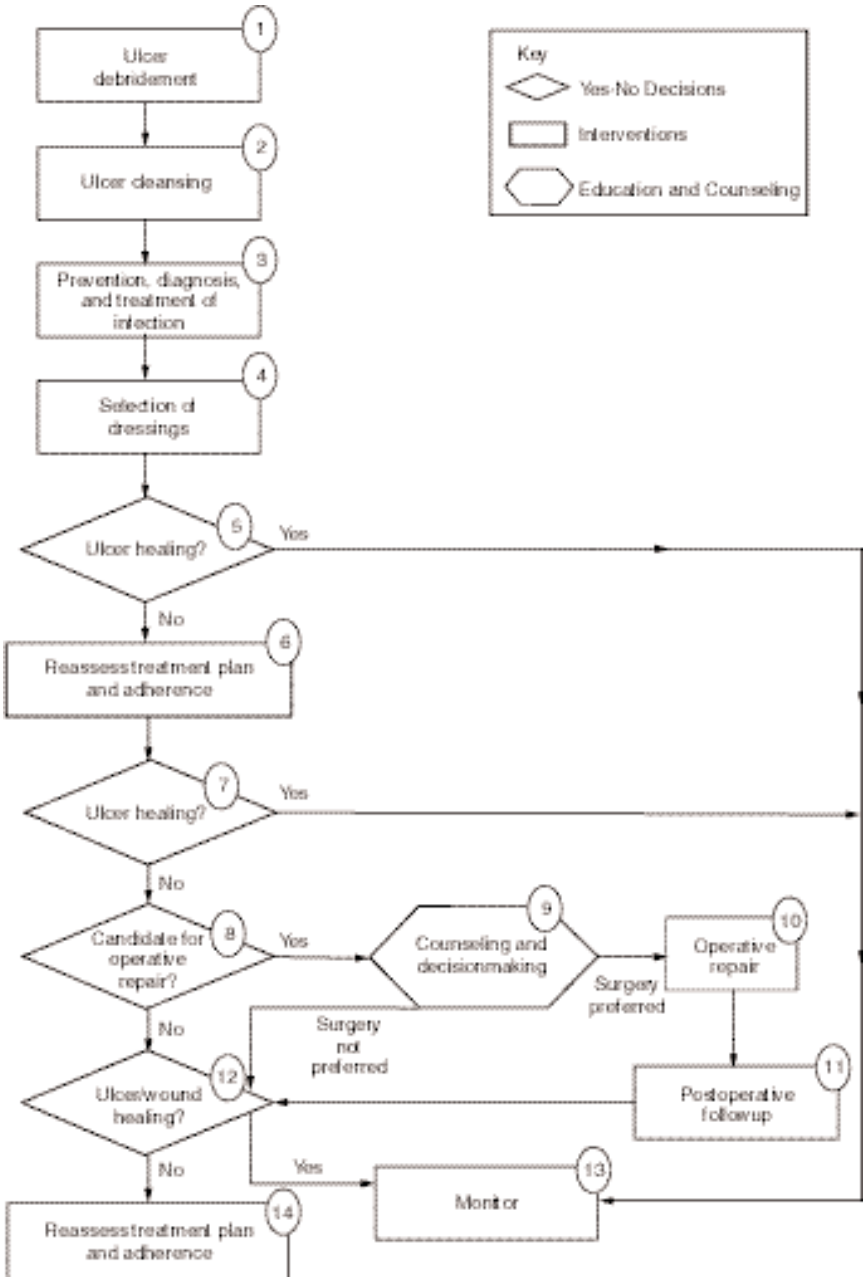

Figure 7.4 Ulcer care. (*Source:* National Pressure Ulcer Advisory Panel: www.npuap.org.)

Instruments/Scales

Braden Scale for Predicting Pressure Ulcer Sore Risk*

Sensory Perception: Ability to respond meaningfully to pressure-related discomfort

SCORE

1. **Completely Limited:** Unresponsive (does not moan, flinch, or grasp) to painful stimuli, due to diminished level of consciousness or sedation, OR limited ability to feel pain over most of body surface.
2. **Very Limited:** Responds only to painful stimuli. Cannot communicate discomfort except by moaning or restlessness, OR has a sensory impairment which limits the ability to feel pain or discomfort over half of body
3. **Slightly Limited:** Responds to verbal commands but cannot always communicate discomfort or need to be turned, OR has some sensory impairment which limits ability to feel pain or discomfort in 1 or 2 extremities.
4. **No Impairment:** Responds to verbal commands. Has no sensory deficit which would limit ability to feel or voice pain and discomfort.

Moisture: Degree to which skin is exposed to moisture

SCORE

1. **Constantly Moist:** Skin is kept moist almost constantly by perspiration, urine, etc. Dampness is detected every time patient is moved or turned.
2. **Very Moist:** Skin is often but not always moist. Linen must be changed at least once a shift.
3. **Occasionally Moist:** Skin is occasionally moist, requiring an extra linen change approximately once a day.
4. **Rarely Moist:** Skin is usually dry; linen requires changing only at routine intervals.

Activity: Degree of physical activity

SCORE

1. **Bedfast:** Confined to bed
2. **Chairfast:** Ability to walk severely limited or non-existent. Cannot bear own weight and/or must be assisted into chair or wheelchair.
3. **Walks Occasionally:** Walks occasionally during the day, but for very short distances, with or without assistance. Spends majority of each shift in bed or chair.
4. **Walks Frequently:** Walks outside the room at least twice a day and inside room at least once every 2 hours during waking hours.

Mobility: Ability to change and control body position

SCORE

1. **Completely Immobile:** Does not make even slight changes in body or extremity position without assistance.
2. **Very Limited:** Makes occasional slight changes in body or extremity position but unable to make frequent or significant changes independently.
3. **Slightly Limited:** Makes frequent though slight changes in body or extremity position independently.
4. **No Limitations:** Makes major and frequent changes in position without assistance.

Nutrition: Usual food intake pattern

SCORE

1. **Very Poor:** Never eats a complete meal. Rarely eats more than 1/3 of food offered. Eats 2 servings or less of protein (meat or dairy products) per day. Takes fluids poorly. Does not take a liquid dietary supplement, OR is NPO' and/or maintained on clear liquids or IV for more than five days.
2. **Probably Inadequate:** Rarely eats a complete meal and generally eats only about half of any food offered. Protein intake includes only 3 servings of meat or dairy products per day. Occasionally will take a dietary supplement, OR receives less than optimum amount of liquid diet or tube feeding.
3. **Adequate:** Eats over half of most meals. Eats a total of 4 servings of protein (meat, dairy products) each day. Occasionally will refuse a meal, but will usually take a supplement if offered, OR is on a tube feeding or TPN regimen, which probably meets most of nutritional needs.
4. **Excellent:** Eats most of every meal. Never refuses a meal. Usually eats a total of 4 or more servings of meat and dairy products. Occasionally eats between meals. Does not require supplementation.

Friction and Shear

SCORE

1. **Problem:** Requires moderate to maximum assistance in moving. Complete lifting without sliding against sheets is impossible. Frequently slides down in bed or chair, requiring frequent repositioning with maximum assistance. Spasticity, contractures, or agitation leads to almost constant friction.
2. **Potential Problem:** Moves feebly or requires minimum assistance. During a move skin probably slides to some extent against sheets, chair, restraints, or other devices. Maintains relatively good position in chair or bed most of the time but occasionally slides down.
3. **No Apparent Problem:** Moves in bed and in chair independently and has sufficient muscle strength to lift up completely during move. Maintains good position in bed or chair at all times.

Braden Scale Scores

1= Highly Impaired
3 or 4= Moderate to Low Impairment
Total Points Possible: 23
Risk Predicting Score: 16 or Less

NPO: Nothing by Mouth
IV: Intravenously
TPN: Total parenteral nutrition

Total Score:

*Barbara Braden, PhD, RN, FAAN and Nancy Bergstrom, PhD, RN, FAAN. Copyright © 1987. Used by permission.

PRESSURE ULCER EVALUATION STRATEGIES: KEY TREATMENT POINTS

A. Assess the *whole* person, not just the pressure ulcer.
   1. Physical health, including nutrition.
   2. Pain.
   3. Psychosocial health.
   4. Pressure ulcer complications.

B. Attempt to use established measures of wound healing: PUSH (NPUAP, 1997) or PSST (1990).

C. Maintain principles of wound care relevant to pressure ulcers.
   1. Debride wound:
      a. Sharp/surgical.
      b. Mechanical.
      c. Autolytic.
      d. Chemical/enzymatic.
   2. Clean wound.
   3. DO use solutions that don't kill cells (i.e., normal saline and *some* commercially available wound cleansers). Skin cleaners are not the same as wound cleansers.
   4. DON'T use solutions that are cytotoxic (kill cells):
      a. Dakin's solution (sodium hypochlorite solution).
      b. Acetic acid.
      c. Providone iodine.
      d. Hydrogen peroxide.
      e. Some commercial skin cleansers.

(Continued)

PRESSURE ULCER EVALUATION (Continued)

5. Irrigation principles:
   a. Clean wounds using minimal force.
   b. 4–15 psi is a safe and effective pressure range for wound cleaning (8 psi = 19 gauge needle with 35 cc syringe).
6. Cover wound with appropriate dressing(s):
   a. Protect the wound.
   b. Maintain a moist wound-healing environment.
   c. Prevent maceration of surrounding skin.
   d. Control exudate.
7. Factors to consider when selecting a dressing:
   a. Maintain a moist environment.
   b. Balance absorption of drainage without desiccating (drying out) wound bed.
   c. Assess the dressing's ability to absorb drainage.
   d. Consider the location of the wound; regularly reassess dressings near the anus.
   e. Eliminate dead space in large wounds by *loosely* filling the wound with dressing or wound gel. Don't overpack!
   f. Consider the amount of caregiver time for dressing changes.
   g. Assess need for clean versus sterile dressings:
      1) AHCPR (1994) recommends *clean* dressings in the *home.*
      2) Use one set of *clean gloves* per patient. Clean the most contaminated ulcer last.

Topic 7: *Pressure Ulcers in Older Adults*

Case Study

Mr. B, a 72-year-old retired Black accountant, has just been admitted to the hospital (from his long-term care facility) with a diagnosis of pneumonia. He is incontinent (urine), and his skin is often moist. He has a poor appetite (eats only 50% of his meals), has labored respirations, and a temperature of 101˚F. He has left-sided weakness from a cerebral vascular accident two years ago, and he needs assistance with his activities of daily living, including mobility. He generally sits in the chair all day and is often found leaning to one side. He walks only once a day, for about 5 minutes, and he requires a one-person assist and a walker.

Evaluation Strategies

A. Case Study (based on case study of Mr. B, page 7-15).

1. What is Mr. B's score and risk category?

   Answer: His Braden score is 15: high-risk sensory perception = 3; moisture = 2; activity = 2; mobility = 2; nutrition = 2; friction and shear = 2 each.

2. Mr. B has darkly pigmented skin. What assessment techniques are especially important to use on this client?

   Answer: Assessing for pressure ulcers in clients with darkly pigmented skin should include assessment with natural or halogen light for changes in skin tone—usually a purplish darkening in color or a change in skin temperature (warmth rather than coolness).

3. After he has been in the hospital for two days, the nurse notices that MR. B has a small 1cm. × 3cm. open wound with yellow slough tissue on his sacrum. In report, you are told that the primary care provider has ordered that the sacral pressure ulcer be cleaned with povidone iodine and a moist normal-saline gauze dressing applied.

   What stage is this pressure ulcer?

   Answer: Can't stage until the yellow slough necrotic tissue is removed; then, observe the wound bed for deepest level of tissue exposed, and stage the pressure ulcer.

Evaluation Strategies

4. What do you think about the appropriateness of the cleansing and dressing order?

   Answer: The AHCPR guidelines state that povidone iodine should *not* be used to clean wounds. A moist normal gauze dressing would be used in a clean granulating wound—not in this wound because it has necrotic slough tissue. The first goal for this local wound care is debridement. This could be accomplished by *mechanical* (wet-to-dry gauze dressing), *chemical/enzymatic* (drugs that are applied topically as per manufacturer's direction), *autolytic* (transparent film dressing, usually contraindicated if wound is infected), or *sharp/surgical treatment* (done by MD, advanced practice certified nurse, or physical therapist). After the pressure ulcer is debrided, begin moist-wound healing principles.

5. What teaching does this client's family need about his plan of care?

   Answer: Use the AHCPR consumer guideline booklet.

B. *Clinical Observation:* Observe student's performance of risk assessment and local wound care skills on models or actual clients/residents.

Evaluation Strategies

C. *Test Questions* (answer is indicated with an *):

1. Which one of the following scores on the Braden Scale would indicate that a 75-year-old client admitted for a fractured hip was at high risk for developing a pressure ulcer?
   * a. 17
   b. 19
   c. 21
   d. 23

2. Discuss pressure ulcer assessment, including staging.

   The nurse observes the following data on the sacral pressure ulcer of a 67-year-old Black male who is a resident in a long-term care facility: The wound is 1cm. × 2cm., shallow, with beefy red tissue in the wound bed and a small amount of clear exudate. The surrounding area around the wound is cool to touch with no swelling or hardness.

   Using the NPUAP system, at what stage is this pressure ulcer?
   a. Stage I.
   * b. Stage II.
   c. Stage III.
   d. Stage IV.

3. Which one of the following nursing care orders should the nurse question as being *inappropriate* in the plan of

care for an 82-year-old incontinent female, when preventing the development of pressure ulcers is an important goal?

a. Turn and position the client every 2 hours.
b. Monitor the client's serum albumin level.
* c. Use a "donut" device on the chair when client is sitting.
d. Implement a toileting schedule to treat her urinary incontinence.

4. A 68-year-old client with lightly pigmented skin has a noninfected pressure ulcer. Which one of the following cleaning and dressing techniques should be used only for mechanical debridement?

a. Dakins solution and a hydrocolloid dressing
b. Povidone iodine and a transparent film dressing
c. Acetic acid and a wet-to-damp dressing
* d. Normal saline and a wet-to-dry gauze dressing

5. According to the AHCPR Clinical Guidelines, which one of the following assessments supports the finding of clinically significant malnutrition in a client with a pressure ulcer?

a. Weight loss of 5% over three months
b. Total lymph count greater than 1,800/mm
* c. Serum albumin less than 3.5 gm/dl
d. WBC count greater than 10^5

Topic 7: *Pressure Ulcers in Older Adults*

Experiential Activities/ Clinical Experiences

A. Demonstrate local pressure ulcer care on models as well as actual persons.

B. Using the Braden Risk Scale, do a pressure ulcer risk assessment on a variety of clients/residents.

C. Use pictures of various pressure ulcers and determine the stage and other assessment characteristics.

D. Use pictures of various pressure ulcers and develop a comprehensive plan of care based on the unique characteristics of the pressure ulcer. NPUAP slide sets available from NPUAP: (703) 464-4849 or (703) 435-4390; also on the World Wide Web: www.NPUAP.org.

E. Demonstrate local wound care skills, such as irrigation and dressing application, on models and actual clients/residents.

F. Check out the following pressure ulcer/wound care sites on the Web:

1. Condensed Course of the Basics of Chronic Wound Healing, by Rita A. Frantz, PhD, RN, FAAN, Professor of Nursing, University of Iowa.

   www.conifo.nursing.uiow.edu/Chronic Wound/index.htm

2. Information about WOCN, an association of enterostomal therapy (ET) nurses whose specialty areas include care of persons with pressure ulcers.

   www.wocn.org

Experiential Activities/ Clinical Experiences

3. Information about the National Pressure Ulcer Advisory Panel (NPUAP)

   www.NPUAP.org

4. Selected wound care journals:
   - *Advances in Skin & Wound Care* (www.woundcarenet.com)
   - *Journal of Wound, Ostomy and Continence Nursing*
   - *Ostomy/Wound Management*
   - *Wound care Journal on the Web*
     www.smtl.co.uk/World-Wide-Wounds

5. Wound care directory of information

   members.aol.com/woundnet/index.html

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Topic 7: *Pressure Ulcers in Older Adults*

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